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ABSTRACT

This report describes a program to improve reading and language arts skills. The targeted population consisted of students in 2 first grade classrooms (average class size 25) from a midwestern elementary school in a predominantly white, middle to upper-middle class neighborhood. Data documenting the problem was obtained from the previous year's kindergarten teacher and current classroom teachers and consisted of informal and formal assessments, teacher observational surveys, and school records. Results from analysis of probable cause data indicated that students lacked preliteracy skills including inadequate awareness of print and phonemes, as well as phonological processing deficits. Additionally, some students lacked the auditory and visual skills to become successful readers. Findings suggest that lack of exposure to print media and inadequate family involvement in literacy development may have contributed to the problem. A review of problem solution strategies suggested by literature, combined with an analysis of the problem setting, resulted in the development of a reading intervention program of direct instruction. The selected targeted group for intervention consisted of nine at-risk first graders, six boys and three girls. Post-intervention data indicated student improvement in the targeted areas of print awareness, phoneme awareness, and phonological processing. Students increased their ability to use letters to represent written text, as well as improved their ability to recognize phonemes and process the use of phonemes in reading and language arts activities. (Contains 5 tables of data, 14 figures, and 35 references; 5 sample forms are appended.) (CR)

IMPROVING READING AND LANGUAGE ARTS SKILLS OF AT-RISK FIRST GRADERS THROUGH DIRECT INSTRUCTION OF PRINT AWARENESS, PHONEME AWARENESS AND PHONOLOGICAL PROCESSING

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ABSTRACT

This report describes a program designed to improve reading and language arts skills. The targeted population consisted of entering first grade students from a midwestern elementary school in a predominately white, middle to upper-middle class neighborhood. Data to document the problem was obtained from the previous year's kindergarten teacher, current classroom teachers, and the researchers. Informal and formal assessments, teacher observational surveys, and school records were used.

Analysis of probable cause data revealed that students lacked preliteracy skills including inadequate awareness of print and phonemes, as well as phonological processing deficits. Additionally, some students lacked the auditory and visual skills to become successful readers. Lack of exposure to print media and inadequate family involvement in literacy development may have contributed to the problem.

A review of solution strategies suggested by literature, combined with an analysis of the problem setting, resulted in the development of a reading intervention program of direct instruction. The program was designed to provide the needed remediation to those students determined to be at risk for reading difficulties.

Postintervention data indicated student improvement in the targeted areas of print awareness, phoneme awareness, and phonological processing. Students increased their ability to use letters to represent written text, as well as improved their ability to recognize phonemes and process the use of phonemes in reading and language arts activities.

CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

The students of the targeted first grade classes exhibit poor reading and language arts skills. Evidence for the existence of this problem includes test records and descriptive data from kindergarten and first grade teachers.

Immediate Problem Context

The targeted school, built in 1961, is a one-story, handicapped accessible, K-6 elementary building located on ten acres adjacent to a beautiful city park. According to the School Improvement Plan, there are currently 355 students enrolled at the school. Approximately 50% of these students ride the bus, since the student population is derived from the surrounding neighborhoods and the rural area. A factor currently impacting class size is the growth in school population resulting from new home construction in the immediate area. Average class size in kindergarten has been 25 students, in first grade 25 students, in second grade 22 students, in third grade 23 students, in fourth grade 25 students, in fifth grade 25 students, and in sixth grade 30 students. Of the student population, 4.4% is non-White. The gender breakdown is 51.8% male and 48.2% female students. The Individual Education Plan (IEP) students account for 7.4%, and

the Chapter I math services are received by 4.1% of the school population.

The school is staffed by a principal, secretary, three part-time clerical office staff, school custodian, food service personnel, teacher aides (clerical and instructional), as well as certified faculty. Currently there are two male and twelve female classroom teachers providing instruction in the building. There are two sections of every grade, K-6, with an additional second grade classroom due to an increase in student enrollment. The special education resource collaboration team servicing the building includes two full-time resource collaboration teachers, two full-time and three part-time instructional aides, and a full-time speech and language pathologist. The average teaching experience of building certified staff is 14.4 years, with 65% having a Bachelor's Degree and 35% having a Master's Degree (Morton Unit School, 1995). The district also provides itinerant services by a school psychologist, a social worker, and an occupational therapist. The school offers programs for students from all ranges of ability with a supportive staff that provide opportunities to achieve in many areas of a well defined curriculum. Additional programs are: Chapter I Math, Reading Recovery, Developmental Reading, and an academically talented Challenge Program. Students have access to a library staffed by a certified part-time librarian. Students also have access to computers in both the classroom setting and in a newly equipped computer lab staffed by a part-time computer assistant. All

students make weekly visits to the library and computer lab, in addition to music and physical education classes. Since fostering a team approach between home and school is very important to the school staff, an active Parent-Teacher Organization is involved with school volunteer programs, such as picture person, and after school club activities, as well as fundraising efforts to benefit the school.

The teaching and learning of skills and strategies in language arts and reading is crucial to developing student competence for success at school and in everyday life experiences. The school has a coordinated curriculum with learner outcomes and objectives defined for all grade levels. Currently, the district Language Arts Committee is re-evaluating objectives, outcomes, and Criterion Referenced Testing (CRT) data. Over the past few years the school's state mandated improvement plan has focused on the need to improve student skills in the reading and language arts areas. Standardized test scores and CRT data show evidence of poor reading and language arts skills at the first grade level. This negative effect continues to limit skill acquisition in later grades.

The estimated time devoted to language arts instruction at the elementary level is 155 minutes per day (School Report Card, 1996). The kindergarten and first grade classes are receiving support and instructional assistance from the Reading Recovery and developmental reading teacher, the resource collaboration teacher, and the speech and language pathologist. The reading

teacher provides twenty minutes of assistance to both the morning and afternoon kindergarten classes for four days a week. This pull-out group work is provided for all students on a rotating basis. The students can receive remedial or enrichment instruction. The school speech and language pathologist also assists the kindergarten classes with acquisition of early literacy skills. Both of the first grade classes are currently receiving Reading Recovery services. Four students receive one-on-one instructional time of a half-hour a day for approximately fifteen weeks. As students complete the program, new students are added. The speech and language pathologist works with selected students to improve reading, speaking and listening behaviors with emphasis on phoneme awareness. The resource collaboration teacher provides sixty minutes of pull-out reading and language arts instruction daily to one IEP student. The resource collaboration instructional aide also provides thirty minutes of daily assistance in the classroom.

First grade and kindergarten teachers in the school agree that there is a problem with acquisition of pre-reading skills which negatively affect first grade performance in reading and other language arts areas. Inherent possible causes are the overcrowding of classrooms, the presence of more at-risk students and inclusion students with special needs. The lack of student motivation and readiness to learn are also possible contributing factors.

The Surrounding Community

The targeted school is located in an attractive and progressive Midwestern community of approximately 15,000 people. According to the Illinois Department of Commerce and Community Affairs, the 1990 census placed the town's population at 13,800 and the county population at 123,692 (Illinois Department, 1996). Residents enjoy the congenial atmosphere of a small town and are only three hours by car from two major metropolitan areas. The residents are actively involved in community, church and school affairs. The local park district has eight parks totaling 270 acres and offers many sports and recreation programs for children and adults. The community's twenty-two churches are supportive of families and schools and offer numerous educational programs.

Many of the residents are employed by Caterpillar, Inc., Libby's (Division of Nestle), Iron-A-Way, Morton Buildings, Morton Metalcraft, and Tazewell Publishing Company which are all within the city limits. These employers are actively involved in partnership with the schools.

Assessed valuation in the township was $189,898,920 in 1995. That figure, a $16 million increase, followed increases in each of the two preceding years (Look, 1996).

The school district encompasses 50 square miles, including two separate communities and the surrounding rural areas. The district is comprised of four elementary buildings (grades K-6), one junior high building (grades 7-8), and one senior high building (grades 9-12). Total enrollment is approximately 2,926

pupils. Operating expenditures per pupil for 1994-95 (most recent figures available) was $5,141. The average teacher salary in the district for 1995-96 is $36,769. The average administrator salary for 1995-96 is $59,556. Two local parochial schools offer educational alternatives to local families; home schooling is also an educational alternative used by some families. There are several day care and pre-school facilities serving the community (Morton Chamber of Commerce, 1996).

According to the School Improvement Plan, the district student population is 98.6% White, with the majority of the students coming from neighborhoods comprised of middle to upper income families. The majority of parents have high school diplomas or further education. The district has a strong academic program, along with vocational programs and a full range of support services. The students consistently perform above average on local, state, and national assessments. There is an attendance rate of 95.5% district-wide. The senior high has a graduation rate of 88.9%, with more than 85% of the students pursuing higher education opportunities. There is a favorable teacher-pupil ratio and a fully coordinated curriculum (Morton Community, 1995-96). To further strengthen the curriculum, the district has Strategic Planning Action Teams and other curriculum and grade level committees. These groups target areas of need and develop ways to meet these needs. The learner outcomes and grade level objectives are also evaluated for any needed revisions. To help the teachers accomplish this, the district

has monthly half-day inservice sessions. At these times, teachers can work together on curriculum and grade level concerns. As part of its support services, the district's special education personnel offer a variety of services. The program range includes collaboration, consultation, resource, pull-out, and inclusion. There are also speech and language therapy services in all district buildings, Chapter I Math in three elementary schools, and developmental reading and Reading Recovery in all four elementary buildings. Two social workers and an itinerant occupational therapist service all the buildings.

National Context of the Problem

Teaching strategies and learning practices in the language arts curriculum have long been the subject of educational research. According to Smith (1992), the debate is endless:

> Controversies having to do with reading instruction flare up with predictable regularity, a new one erupting almost as soon as the smoke and passion of the previous outbreak have subsided. Teachers are once more being reproached for their failure to make children literate. (p. 432)

The feasibility of different instructional approaches has caused debate as to whether the need for carefully controlled instruction is more beneficial than an open-ended, creative, exploratory approach. Some researchers advocate that the learners must receive instruction in needed skills and strategies, while others feel that students will develop skills

as they participate in meaningful language activities. In actuality, learners may benefit from both types of teaching methods. Often the overall approach may be a combination of skill and strategy instruction within a language learning environment that stimulates reading, writing, listening and speaking skills.

Research that supports the strength of language-based, or student-centered instruction has been commonly referred to as the whole language philosophy to literacy instruction. "Reading, writing, speaking, and listening are language behaviors, rather than subject areas, and therefore, are essential for all cognitive learning" (Tucker, 1996, p. 1). Through using reading and writing, and observing others reading and writing in everyday situations, children can learn to read and write. Nevertheless, language-based literacy instruction has been controversial, and often receives more favorable acceptance in grades two and above, once children have learned to read. Language-based literacy instruction focuses on teaching reading strategies for constructing meaning, as opposed to the traditional skills model of reading that stresses the mastery of skills for identifying words, which then is supposed to lead to meaning (Tucker, 1996).

Although many proponents of phonics seem to feel that language-based instruction avoids phonics, in actuality, it includes "all the language cue systems, of which one is the letter/sound system" (Tucker, 1996, p.2). The issue is really not to include phonics, but how to incorporate, or integrate phonics instruction, while acknowledging current research that

letter/sound relationships taught through use of a graphophonemic cue system in a contextual setting attempts to construct meaning from print (Tucker, 1996).

The structured teaching of critical skills, such as letter/sound relationships and word attack skills, helps students develop competence in such skills within a reasonable period of time. When taught directly, rather than embedded in a total language context, the teacher must include not only time for young students to learn the skills, but provide them with opportunities to apply them. When children are taught letter/sound relationships to decode words, they need to practice word identification in meaningful context.

Traditionally, in the local school curriculum for language arts instruction in kindergarten and beginning first grade, students are expected to learn letter names, and to learn the sounds that letters make, to then introduce them to simple words and short sentences. A great deal of time is spent in teaching these prerequisite skills to reading and writing, because of the traditional belief of part-to-whole; in order for children to learn to read and write whole texts, they have to learn the smallest parts of language first. Instruction in letter/sound correspondences has been "predicated on the assumption that the constituent parts of an English syllable are phonemes and that phonemes are more or less represented by English orthography" (Moustafa, 1995, p. 464). Notably absent from current theories of reading and how children learn to read, is agreement on how

students learn to effectively recode graphophonological print. Researchers do agree that reading involves phonological, syntactic and semantic processes; however, the graphophonological models are based on either phonological processes or syntactic and semantic processes. Of interest to the letter/sound relationship skill instructor, is the fact that the phonological explanation of productive reading is divided between two models, the phoneme-blending or the analogy model. Phonemic segmentation is not readily grasped by the young student. A research study was conducted by Moustafa (1995), with 75 first grade students to investigate how young children learn to efficiently recode graphophonological print phonologically. Of interest to those who advocate letter/sound relationship skill instruction, was the discovery that the "children who were better able to conserve parts and wholes recoded more pseudowords than those who were less able to conserve parts and wholes" (Moustafa, 1995, p. 465).

There appears to be consensus among educational researchers that first grade is a crucial year in literacy learning, and that early grade reading success builds the foundation for success in later grades. Allington (as cited in Torgesen & Baker, 1995) theorized that the consequences of not acquiring early literacy skills are several. First, these students actually receive less practice in reading, read fewer words in school lessons, and engage in less reading outside of school. Stanovich theorized (as cited in Torgesen & Baker, 1995) that poor word

identification skills can lead to children reading material that is too difficult for them which interferes with comprehension and pleasurable reading. Brown, Palincsar and Purcell (as cited in Torgesen & Baker, 1995) found that reading lessons for children with reading disabilities focused on correction of word reading and these children received little instruction focused on enhancing comprehension.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

To document the extent of early literacy skills in two first grade classrooms, assessments were administered to each student in both classrooms. Working with a group of six students at a time, several assessments were administered by the researchers. Children in these small groups were isolated from one another during the testing in order to ensure individual effort. In small groups the following were administered: the Test of Phonological Awareness, a writing vocabulary test, a sentence dictation test, and a letter production from dictation test. In addition, these same students were individually interviewed to assess certain skills. The tests administered individually to each first grade student were: the researchers' informal test, a letter identification test, a concepts about print test, and the Ohio Word Test.

The previous year's kindergarten teachers, as well as the current first grade teachers, were provided observational survey checklists (Appendix A). Teachers were asked to rate each student on a scale of 1 (not at all), 2 (sometimes), 3 (most of the time) for the following behaviors: attention to the teacher,

follows directions, time on task, and print awareness. The kindergarten and the first grade teachers did not collaborate in filling out the surveys. The researchers noted that both first grade and kindergarten teachers rated approximately 20% of the students in the not at all category for print awareness. The three behaviors, attention to teacher, follows directions, and time on task, may be a factor in the lack of print awareness. Also, the lack of print awareness may be a causal factor in the inattentive behaviors. Refer to Table 1 for the percentages obtained from the teacher observational survey checklists.

Table 1

Categories and Percentages of Students As Reported by Classroom Teachers September 1996

CATEGORY	NOT AT ALL		SOMETIMES		MOST OF TIME	
	K	1st	K	1st	K	1st
Attention to Teacher	7%	20%	57%	47%	36%	33%
Follow Directions	7%	27%	54%	36%	39%	38%
Time on Task	5%	11%	52%	53%	43%	36%
Print Awareness	20%	16%	43%	47%	36%	38%

Kindergarten N = 44 First Grade N = 45

In reviewing the teachers' observational surveys on a student by student basis, the researchers noted that 22% of the students were rated in the not at all or sometimes category by both the kindergarten and first grade teachers. In addition, the teachers were encouraged to make comments concerning individual students. Teachers' comments were significant to the researchers when they were analyzing data and arriving at conclusions as to

which first grade students were at risk. A few of the first grade teachers' comments were: "behavior problem," "talkative," "immature, wiggly, doesn't listen," "talks a lot, wiggly," "very quiet," "quiet, doesn't follow along," "talks constantly, wiggly, impulsive," "doesn't follow directions, talks a lot."

The researchers' informal test (Appendix B) was administered one-on-one by the researchers and included: a screening of auditory short term memory skills, a screening of visual short term memory skills, and letter production from dictation. The total possible score for the auditory short term memory task was 9 points. The researchers determined an at-risk range for this task would be 0 to 6 points, and the mid-range would be 4 to 6 points. On the auditory short term memory section, one fifth of the students obtained less than 66% of the answers correct. For the visual short term memory task the total possible score to be obtained by a student was 6 points. The at-risk range determined by the researchers would be 0 to 4 points, and the mid-range would be 3 to 4 points. On the visual short term memory section, nearly three fourths of the students obtained less than 66% of the answers correct. On the letter production task, students were to write upper and lower case letters verbally presented by the researcher. On this letter production task, the total possible point score was 52. The researchers determined that any score 30 and below would be considered at risk. The data from the letter production test revealed that 30 of the 45 first graders could not produce 80% or more of the alphabet letters when the researcher verbally instructed the student to write,

i.e. upper case D. The researchers chose these areas because lack of auditory and visual attention can interfere with acquisition of early literacy skills. In addition, the inability to produce a letter in written form can be an indication of early literacy difficulties.

To test the receptive phonological skills of all the first grade students, one of the researchers administered the Test of Phonological Awareness. Children were tested in small groups to avoid the problem of children copying from one another and failing to stay on task. This test required the researcher to pronounce four different kinds of sounds: vowel sounds, unvoiced plosive consonants (p, k, t), continuant consonants (m, f, n) and voiced consonants (g, b). During the verbal presentation of this test, the researcher did not pronounce a consonant followed by a vowel sound; for example, the researcher said b, not buh, when asking students to listen for sounds in words presented. The researcher preceded the phonological awareness test with a review of the concepts same and different. Students in the testing situation were instructed to listen to, and designate whether the ending sound (phoneme) in presented words was similar to, or different from, an example word orally presented. Students were to look at ten rows of selected pictures arranged in four pictures per row. The examiner named the first picture in the row. Then, the students were instructed to listen to the names of the remaining pictures in that row, and mark the one having the same final sound as the first picture. An example is: the

first picture, hat, with three remaining pictures in the row, ball, meat, house. Next, students were given ten additional rows of four pictures. This time the students were asked to listen for the last sound in the names of these four pictures and mark the picture that had a different ending sound. An example of the pictures in this portion of the phonological awareness test is: ball, house, pail, smile. A maximum of 20 points was possible, with scores ranging from 6 to 20. Forty-seven percent obtained raw scores from 16 to 20. These raw scores placed students in the first to third stanine as shown in Figure 1.

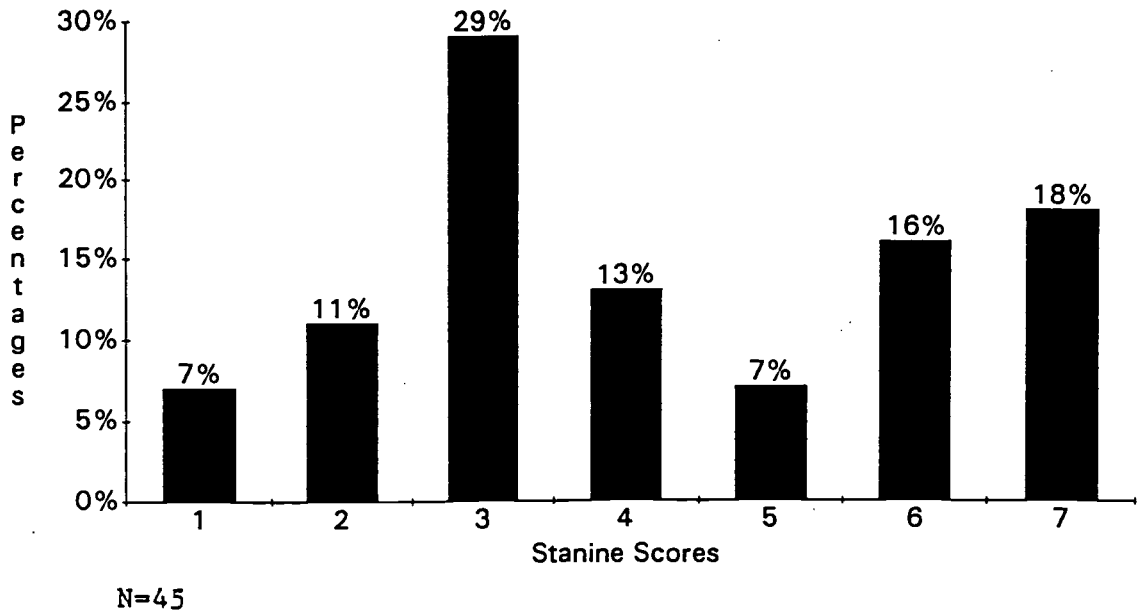

Figure 1. Stanine scores obtained from the Test of Phonological Awareness, August 1996.

After examining the data obtained from the Test of Phonological Awareness, researchers determined that scores in the first to third stanine indicated possible at-risk students for poor phonological skills.

Modified Reading Recovery observation tests were used to assess reading and writing skill levels. To measure writing vocabulary, the children were asked to write all the words they knew how to write in ten minutes. Verbal word prompts were given to assist the children. A summary of the scores are presented in Figure 2.

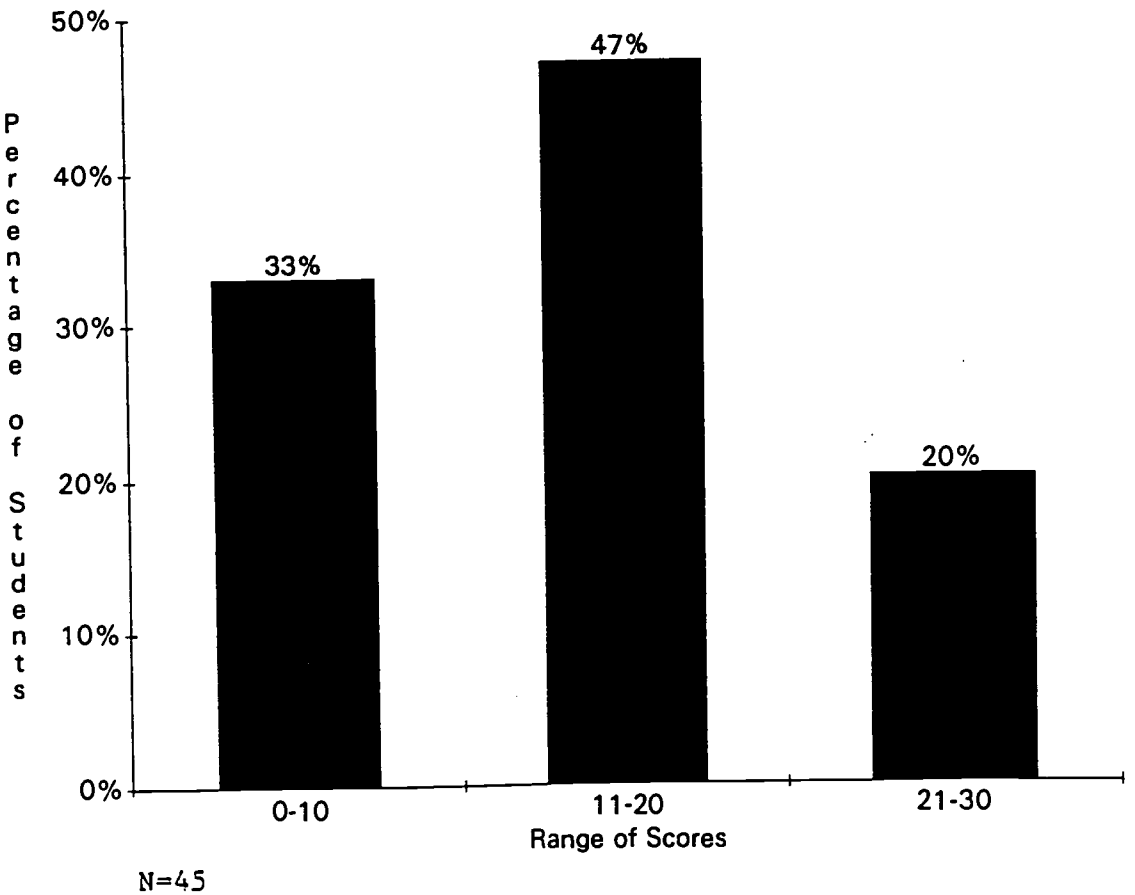

Figure 2. Scores obtained from the writing vocabulary test, August 1996.

The total score reflected the number of words the child was able to write with correct spelling. The range of scores obtained from the writing task was from 1 to 38. Thirty-three percent of the students were able to write 1 to 10 words. Forty-seven percent of the students wrote 11 to 20 words. Twenty percent of the students wrote over 20 words. Writing behavior is a good indicator of a child's knowledge of letters and of the left-to-right sequencing behavior required to read. A poor writing vocabulary may indicate that, despite all his efforts to read, a child is in fact taking very little notice of the visual differences in print. The researchers determined that a child who wrote less than 11 words would be in the at-risk category.

To help measure the students' ability to analyze and record sounds (phonemes) in words, the students were asked to record two sentences dictated by the researcher. Each sound that was correctly represented received one point with a total possible score of 37. The median score was 18.5. A summary of the scores are represented in Figure 3.

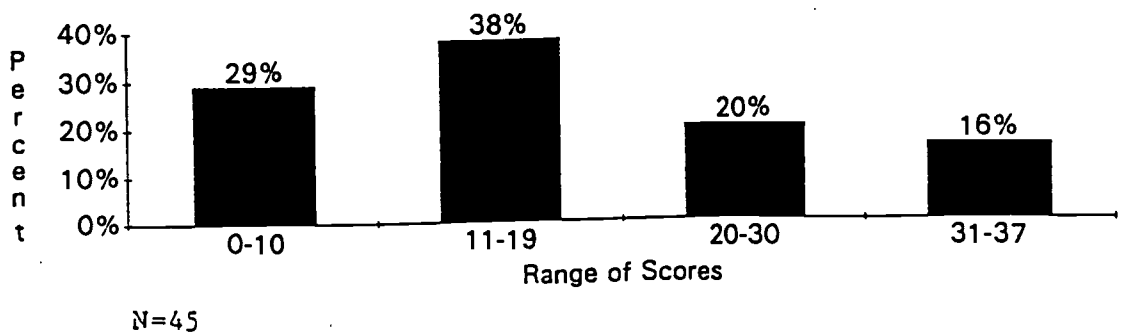

Figure 3. Scores obtained from the sentence dictation test, August 1996.

Twenty-nine percent of the students scored within the 0 to 10 range. Thirty-eight percent of the students scored within the 11 to 19 range. Thirty-six percent of the students scored above the median. This test is a good indicator of a student's phonemic awareness and his ability to work with language. The researchers determined that students with scores of 0 to 19 were at risk for reading difficulties.

The children were asked to identify by name 54 letters of the alphabet including upper case, lower case and printer a and g. A total score of 54 was possible. A summary of the scores is presented in Figure 4.

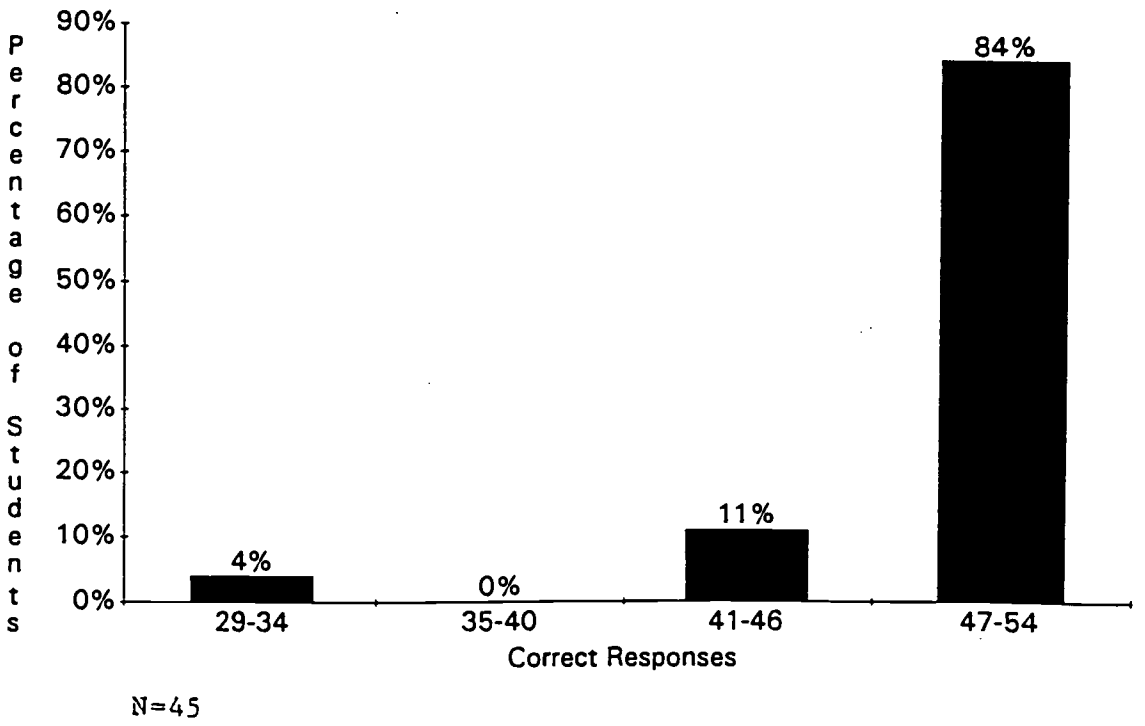

Figure 4. Scores obtained from the letter identification test, August 1996.

The students' scores ranged from 29 to 54. No student scored below 50%. Eighty-four percent of the students could identify 87% or more of the letters. The test results showed that letter identification was not a problem area for the students. Since this skill is not expected to be mastered in kindergarten, results would suggest that the majority of the students were achieving beyond expectation.

To measure print awareness, children were given the concepts about print test. Children used a book to answer a list of questions concerning, for example, directionality, letter and word knowledge, punctuation, and one-to-one matching. The total score possible was 24. A summary of the scores is presented in Figure 5.

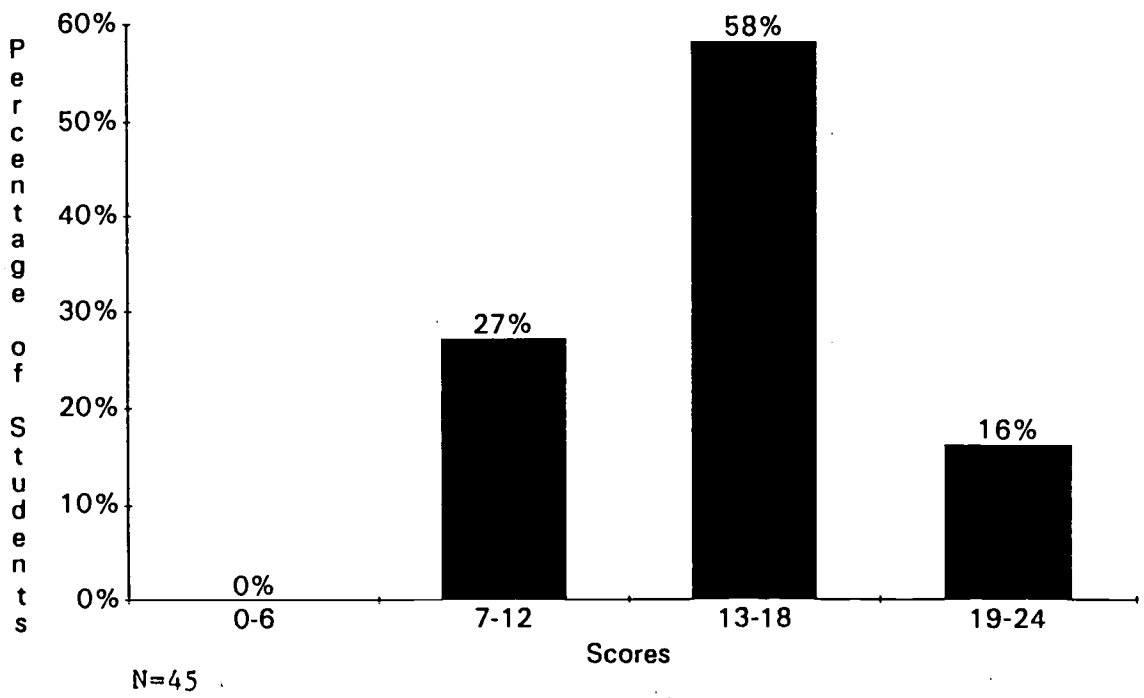

Figure 5. Scores obtained from the concepts about print test, August 1996.

The students' scores ranged from 8 to 24. Twenty-seven percent of the students scored at or below the median score of 12. Print awareness is one of the critical early literacy skills for students. A low score indicates that the student has not learned what kind of things print can tell us, or where it is used. Those students scoring at or below the median may be at risk for reading difficulties.

To assess the children's reading vocabulary, each child was asked to read a list of 20 words from the Ohio Word Test. A summary of the scores are listed in Figure 6.

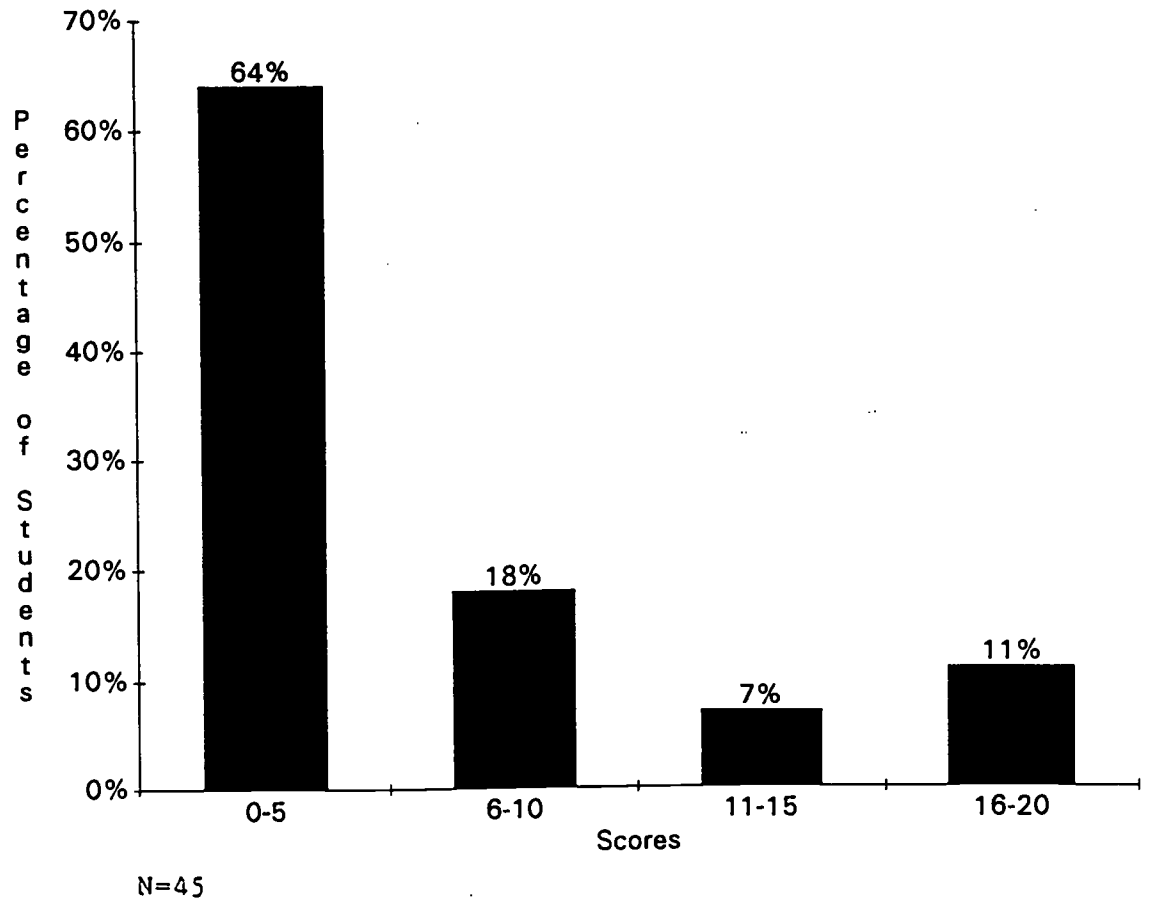

Figure 6. Scores obtained from the Ohio Word Test, August 1996.

Scores ranged from 0 to 20 with a median score of 10. Eighty-two percent of the students knew ten or fewer words. Sixty-four percent knew five or fewer words. The reading vocabulary score reflects the extent to which a child is accumulating a reading vocabulary of the most frequently used words. The researchers determined that a score in the 0 to 5 range placed a child at risk for reading difficulties.

The researchers examined the scores obtained by the students on the Gates-MacGinitie Test. This test was administered to the entire kindergarten morning and afternoon classes in April 1996. Children were placed away from one another in the classroom to encourage individual effort on the test. This test is designed to help the kindergarten teacher learn what each child knows about important background concepts on which beginning reading skills are built. It also can help identify what areas the child may need additional help with as he begins to receive reading instruction. The four subtests are: literacy concepts, reading instruction relational concepts, oral language concepts, and letters and letter-sound correspondences. The researchers examined the percentile scores for the total Gates-MacGinitie Test, rather than analyzing separate sub-test percentiles. A summary of the scores by quartiles is shown in Figure 7.

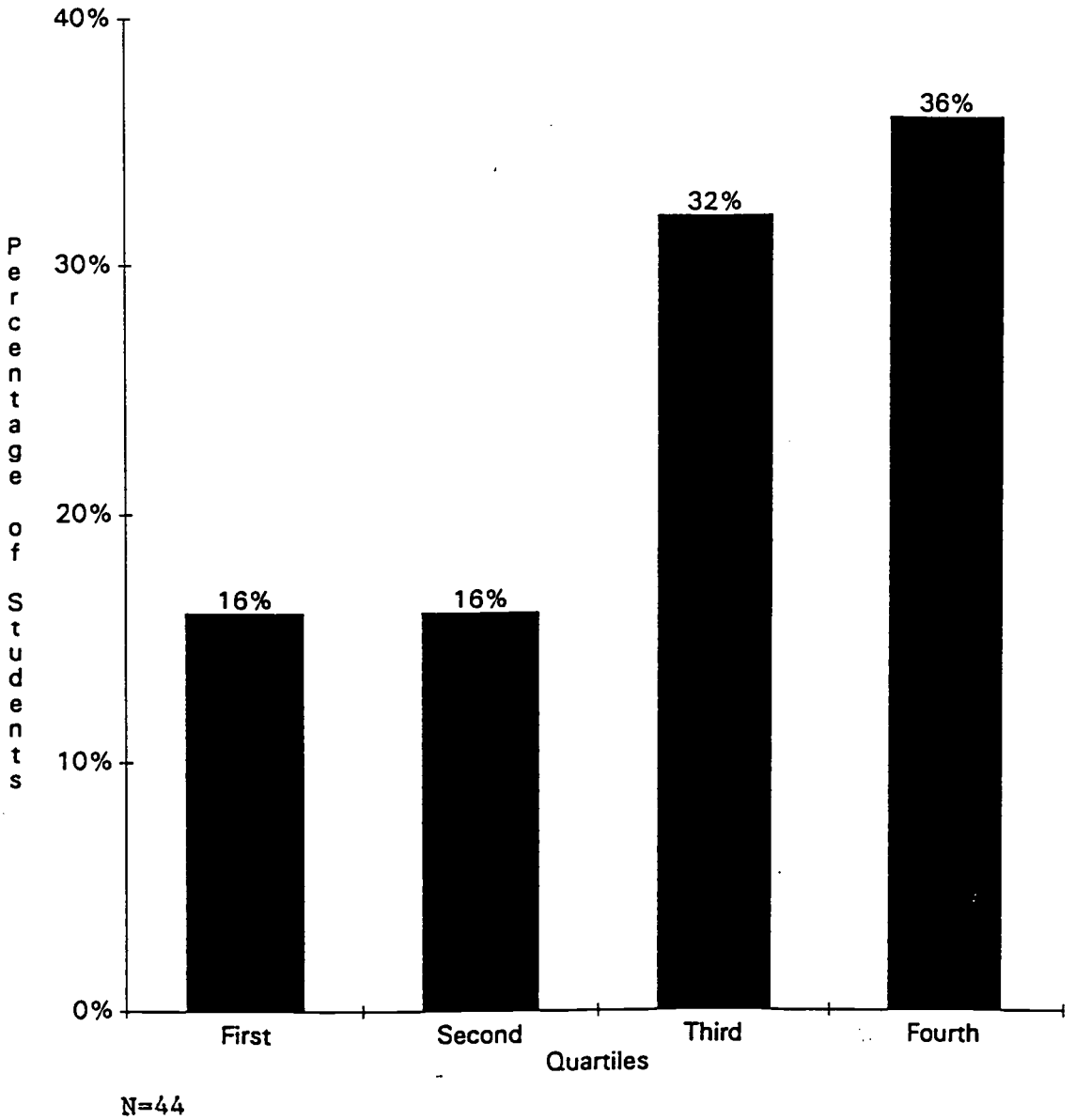

Figure 7. Students' scores obtained from the Gates-MacGinitie, April 1996.

On this test, approximately one third of the students scored in the lowest two quartiles. Since the Gates-MacGinitie Test assesses prereading and early literacy skills, a score in the lowest two quartiles could be an indication of early reading

difficulties. Students having difficulties in reading at the end of kindergarten may continue to be at risk for continuing academic problems.

After examining all the data collected, the researchers determined the criteria for selecting the targeted group of at-risk first grade students to receive intervention. The following criteria were established:

1. Any students identified as eligible for Reading Recovery services were determined not to be considered for the researchers' intervention plan because these students already received a half-hour daily of individual reading instruction.

2. Any students with a current special education individual education plan (IEP) were determined to not be considered for intervention.

3. Any students, not in the above listed categories, whose scores were in the at-risk range on six or more of the nineteen assessments administered were selected as the targeted group for the researchers' intervention.

The selected targeted group consisted of nine first graders, six boys and three girls. The researchers met with the first grade teachers to review the analyses of the data collected from the assessments of all the students, as well as to review the criteria for the selection of the nine students at risk. Individual student test profiles are shown in Table 2. Tests on which the students placed in the at-risk category are marked by an X.

Table 2

Categories in Which Targeted Group Students Are At Risk

CATEGORY	TARGETED STUDENT								
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**
KINDERGARTEN SURVEY									
Attention to Teacher	X								
Follows Directions								X	
Time on Task									
Print Awareness	X				X		X	X	
FIRST GRADE SURVEY									
Attention to Teacher	X			X			X	X	
Follows Directions	X		X	X			X	X	
Time on Task	X								
Print Awareness				X			X	X	
RESEARCHERS' INFORMAL TEST									
Auditory Memory		X	X			X			
Visual Memory	X	X	X	X	X	X	X		
Letter Production	X			X	X	X		X	
TEST OF PHONOLOGICAL AWARENESS	X		X		X	X	X	X	X
MODIFIED READING RECOVERY TEST									
Writing Vocabulary	X	X		X					X
Sentence Dictation	X	X			X	X	X	X	X
Letter Identification									
Concepts About Print				X	X		X	X	
Ohio Word Test	X	X		X	X	X	X	X	X
GATES-MACGINITIE TEST	X	X	X		X	X	X	X	X
FIRST GRADE TEACHERS' INFORMAL TEST	X		X	X	X		X	X	X

Letters, explaining the researchers' intervention plan and asking for permission for participation, were given to the first grade teachers to send home to the parents of the targeted students. Once all of the permission letters were returned the researchers' intervention commenced. During the first meeting with the nine targeted students, the researchers' rhyming and phoneme awareness test (Appendix C) was administered individually to the students. On the rhyming portion of the test there was a maximum of 10 correct responses. The phoneme awareness portion had a maximum of 14 correct responses. The targeted students' percentage scores are shown in Table 3.

Table 3

Categories and Percentages of Correct Responses by Targeted Students on the Researchers' Rhyming/Phoneme Awareness Test September 1996

TARGETED STUDENTS	RHYMING	PHONEME AWARENESS
Student A	60%	29%
Student B	80%	36%
Student C	90%	14%
Student D	40%	22%
Student E	50%	0%
Student F	30%	0%
Student G	100%	86%
Student H	50%	0%
Student I	70%	0%

This screening test provided the researchers with further information about the students' phonological awareness skills and pinpointed difficulties in the early literacy skills of rhyming and phoneme awareness. Forty-four percent of the students scored at or below 50 percent accuracy on the rhyming portion. Eighty-nine percent of the students scored below 37 percent accuracy on the phoneme awareness portion. The researchers noted that only one of the students was able to score above average on both portions.

Probable Causes

The teachers of the targeted first grade classes indicated concern that many of their students had poor functional pre-reading skills at the beginning of the school year. These at-risk students lacked print awareness, phoneme awareness and phonological processing skills. A review of the literature revealed a variety of probable causes for the lack of these early literacy skills.

One possible cause for the lack of readiness is insufficient exposure to early reading experiences and limited encounters with print at home (Beginning reading, 1996). According to Richgels, Poremba, and McGee (1996):

> Early in the long developmental process of becoming literate, children may differentiate pictures from print in storybooks, recognize that alphabet letters are a special set of graphic symbols, read some very familiar words as logographs (responding to a whole word, such as Coca-Cola,

> as a picture-like symbol), write mock letters, know some letter names, write signatures, and pronounce rhyming words.(p. 633)

Jenkins and Bowen (1994) agreed that some of the early print conventions that preschool children demonstrate include recognizing the difference between words and picture on a page. When children are read to at an early age, they also begin to use correct book orientation skills as they recognize, for example, when the pictures and print are "right-side up."

Students may be delayed in the developmental process of seeing words made up of letters rather than as logographs. Words do not function as logographs, rather they are built from combinations of alphabet letters. The letter is the unit of symbolization; each letter stands for a sound (Richgels et al., 1996). According to Mason (1984), when children are able to not only recite the alphabet, but also name and print letters, they have gained information about the critical attributes of distinguishing letters. He stated "letters must be recognized accurately in order to learn to read" (Mason, 1984, p. 523). After attaining this developmental step, children are then able to move to sound-letter correspondence. The child has to understand the concept that the names and the sounds of letters are different, and that the same letter may represent many sounds (Jenkins & Bowen, 1994).

The lack of phoneme awareness is a factor in poor readiness skills for reading. A phoneme is the smallest functional unit of

sound. There are 44 phonemes in the English language. The key to the process of learning to read is the ability to identify the different sounds that make words and to associate these sounds with written words (Beginning reading, 1996). Research supports the importance of phonemic awareness as an essential early literacy skill. Adams (1990) stated:

> Faced with an alphabetic script, the child's level of phonemic awareness on entering school may be the single most powerful determinant of the success he or she will experience in learning to read. (p. 304)

Catts and Kamhi (as cited in Jenkins & Bowen, 1994) found that difficulty with short term memory of spoken or printed linguistic information was common among poor readers. They theorized that the poor reader's weak verbal memory skills resulted from difficulty using phonologically based codes to store verbal information. According to Torgesen, Wagner, and Rashotte (1994), difficulty with phonological memory type tasks is one of the most frequently reported cognitive characteristics of reading disabled students. Kamhi, Catts, Mauer, Apel, and Gentry's study (as cited in Jenkins & Bowen, 1994) found that poor readers have difficulty seeing and following a simple pattern. Even though a story pattern is not a repetitive grouping of symbols, as is a word, a story adheres to sequential rules and provides children phonological and linguistic practice in repeating similar phrases. "Word naming, as well as picture naming, is an important link between auditory knowledge and

visual match for reading" (Jenkins & Bowen, 1994, p. 31).

The widespread use of whole language instruction may have had a negative effect on the development of reading skills in kindergarten. Whole language instruction alone may not be sufficient to develop important literacy competencies in primary grade students at risk for reading failure. According to Blachman (1991), "Whole language proponents tell teachers to avoid doing exactly that which research has shown promotes literacy acquisition" (p. 63). Mather (as cited in Pressley & Rankin, 1994), stated that whole language may be inappropriate for some students, especially beginning readers, who are likely to be at risk for reading failure. She argued in favor of more explicit, code-based instruction for learning disabled students, weaker beginning readers in general, and other populations at risk for reading difficulties. As stated by Pressley and Rankin, 1994:

> When the decoding of print into its spoken counterpart is not fluent, the reader is at a distinct disadvantage for engaging in higher level thinking. There is a very real danger that an across-the-board acceptance of less structured and indirect approaches to literacy instruction, such as whole language, may not be in the best interests of at-risk and lower achieving students. Such approaches may not lead to at-risk students acquiring the basic skills needed for fluent reading of text. (p. 158)

Children from culturally diverse backgrounds often have difficulties with phonological awareness. Their exposure to language at home, exposure to reading at an early age, and dialect all affect their ability to understand the phonological distinctions of the English language (Beginning reading, 1996).

According to Hurford et al. (1994), children with reading disability have been characterized as having pervasive deficits in phonological processing. Since phonological processing deficits often are a factor in reading problems, the diagnosis of reading disabilities can occur on the basis of poor phonological skills alone without regard to intellectual ability. By definition, "Phonological processing refers to a cluster of skills, all pertaining to an individual's ability to understand that words contain sounds or phonemes and to use those sounds as linguistic building blocks" (Hurford et al., 1994, p. 647). Jenkins and Bowen (1994) stated that phonological processing involves both analysis and synthesis skills. The analysis skills involve segmentation of words into phonemes. The synthesis skills involve the blending of phonemes into words. Poor readers perform less well on phoneme and syllable segmentation tasks than good readers. They lack the ability to blend individual segments into recognizable words. There exists for them a lack of an explicit awareness of sound segments and difficulties with encoding phonological information. This deficit makes the letter-to-sound correspondence rules problematic. "Unlike reading, many phonological processing tasks do not involve

letters or visual symbols of any kind, but rather some manipulation of speech segments that have been presented orally" (Wagner, Torgesen, Laughon, Simmons, & Rashotte, 1993, p. 83). Since reading is a language art, children acquire competency in reading as they establish proficiency in our spoken language system. In bridging speech to print, or establishing sound/symbol correspondence in beginning reading, children need to apply phonological competencies and memory as well as knowledge of the auditory segmentation of words (Sawyer & Butler, 1991).

"Phonological awareness develops at about the age children are taught to read" (Wagner & Torgesen, 1987, p. 195). Poor phonological awareness causes the child to be unaware of the sound sequences common to spoken and written words. According to O'Connor, Jenkins, Leicester, and Slocum (1993), phonological skills involve such tasks as the manipulations of the phonological constituents of spoken words such as blending, segmenting and rhyming. "Students who learn to read well can rhyme at approximately age 4" (Machean, Bryant, & Bradley as cited in O'Connor et al., p. 532). Wagner and Torgesen (1987) stated, "Success at producing words that rhymed was related to early reading success" (p. 195).

Inherent possible site based causes include the overcrowding of classrooms due to recent population growth in the community. Another possible cause is the presence of more at-risk students and inclusive students with special needs in regular classrooms.

The lack of student motivation and readiness to learn, as well as insufficient family support and value of reading in the home are also possible contributing factors. Another site based contributing cause, as cited by Moat in O'Connor and Wilson (1995) is "Teachers have an insufficient grasp of spoken and written language structure (including phonological awareness and morphology) and do not know how to teach reading disabled students" (p. 248).

CHAPTER 3

SOLUTION STRATEGY

Review of Literature

For students coming to school without background experiences that typically lead to reading success, more explicit and direct instruction in early literacy and reading readiness skills is needed. Research studies of reading competencies state that the development of skilled reading and writing depends on more than environmental exposure to print and writing experiences. Skilled reading and writing depends on direct instructions. In contrast with the practices of the whole language theorists, researchers continue to document evidence of the effectiveness of explicit, systematic instruction of important reading skills (Pressley & Rankin, 1994). "If young at-risk children can be accurately identified and trained before the phonological processing deficits impede their ability to engage in reading acquisition, it may be possible to prevent many of them from experiencing reading failure" (Hurford et al., 1994, p. 648).

Across the country, several early intervention literacy programs have been implemented, for example: Reading Recovery, Success for All, Wallach Tutoring Program, Reading Success, and

many Orton-Gillingham based methods. One-to-one tutoring in these programs is planned to prevent early reading failure for students unable to learn to read in traditional classrooms with traditional reading programs.

Reading Recovery is an early intervention program for young readers who are experiencing reading difficulties during first grade. Pinnell (1990A) stated that Reading Recovery ensures "a brighter educational future for high-risk children by solving their early literacy problems before they become severe" (p. 17). In Reading Recovery, children receive an individual 30 minute lesson every day from a specially trained teacher. Both reading and writing activities are structured to give the child maximum exposure to print. Children are taught how to use newly acquired knowledge to further support their literacy learning (Clay, 1994). As stated by Pinnell, Fried, and Estice (1990B):

> Clay's research helped us expand our knowledge about how young children learn to read. We began to understand that young readers must learn to "orchestrate" their knowledge of language, of the world, and of print and how it works. Our poor readers did not seem to achieve this orchestration. (p. 282)

Dorn and Allen (1996) described an approach that supplemented existing Reading Recovery programs with small group early literacy instruction. It was developed to provide additional support for first grade children who needed early intervention. They concluded that although Reading Recovery was

a more effective program for low achieving first grade students, about 30 percent of the students participating in this small group program reached average levels of reading performance without individual tutoring.

The Reading Success Program was planned as an economical alternative to the costly teacher training involved with a program like Reading Recovery, and also was initiated as an alternative to a traditional reading intervention program like Chapter I. A Reading Success Screening Test was administered individually to all first grade students during September to assess seven areas of early literacy knowledge. These areas were: "(a) letter identification and production; (b) developmental spelling; (c) concept of word; (d) book reading; and (e) high frequency and decodable word recognition." (Siddall, 1995, p. 61). During the actual one-on-one tutoring time, Siddall (1995) emphasized the following:

> The tutor probes the student to "hear" the phonemes of each word as the child writes them. The results of several research studies have indicated that phonemic awareness and segmentation are crucial skills for students to acquire and can be used to predict future success with literacy. (p. 62)

The Success for All program was developed by Slavin and Madden. The children in the model came from the most disadvantaged and lowest achieving schools in Maryland. Children are homogeneously grouped in classes of 15 to 20 students for reading instruction. Students who are having difficulty receive

individual tutoring sessions of 20 minutes delivered by special education or reading teachers. Instruction emphasizes reading and discussion, language development, and reading at home for 20 minutes each evening (Slavin, Madden, Karweit, Dolan, & Wasik, 1991).

One Orton-Gillingham based method, the Wilson Reading System, provides direct, systematic, multisensory instruction in phonological awareness and language structure. The skills are taught in 12 steps which take one to three years to complete. The lessons follow a standard format and were originally designed for older students, but can be modified for beginning readers. Students are instructed during one-on-one sessions two or three times a week. They are taught a specific sequence of skills, and are required to learn these skills to mastery for both reading and spelling before progressing to the next step. The program requires that teachers attend a two day workshop before starting the program, and attend monthly after school seminars during the school year (O'Connor & Wilson, 1995).

Review of the literature indicated that children at risk for reading difficulties often are late in developing print awareness. They need to be directly instructed in print awareness. They must learn to attend to the details in print, respecting the rules of direction, the order or sequence of letters, and the order of words. At-risk children take a very passive approach to print and need more help learning about print

(Clay, 1993). Pearson (1993) stated:

> The likelihood that a student who is a poor reader in Grade 1 will remain a poor reader in Grade 4, for example, is quite high -- above 80%; conversely, few poor readers in the intermediate grades possess good decoding or word identification skills. (p. 506)

Children with delayed literacy development often have weak auditory and visual memory skills. According to Jenkins and Bowen (1994), direct instruction encourages the child to attend visually and auditorily to the position and sequence of sounds or letters in words. They felt that activities linking phonological awareness with both auditory and visual aspects in an intervention program would aid in literacy acquisition.

As the result of extensive research of beginning reading, Adams' study (as cited in Spiegel, 1995) concluded that "familiarity with the letters of the alphabet and phonemic awareness are both strong predictors of the ease with which a child will learn to read" (p. 92). Lewkowicz (1980) reported that the tasks of oral phonemic segmentation and blending are most closely related to reading and most deserving of inclusion in a reading readiness program. There are various phonemic awareness training tasks that are useful in the early stages of reading readiness instruction. Treiman and Baron (as cited in Jenkins & Bowen, 1994), found that the ability for children to use sound and symbol correspondence rules in reading was highly correlated with their phonemic segmentation ability.

Blachman (1991) stated that just increasing letter sound knowledge does not improve initial reading and spelling. What does have a positive effect is phoneme awareness training coupled with instruction in letter sounds. Adams' study (as cited in Blachman, 1991) concluded that "The evidence is compelling: Toward the goal of efficient and effective reading instruction, explicit training of phonemic awareness is invaluable" (p. 53). Ball and Blachman (as cited in Blachman, 1991) concluded that training in phonemic awareness can be effective when provided to groups of kindergarten children and can be more practical than one-to-one instruction. The group instruction was provided to the children outside the regular classroom by specially trained teachers.

When teaching phonemic awareness skills, research has suggested making activities more concrete. Phonemes can be represented by blocks or color coded pieces. Children can then be taught to add, rearrange and omit phonemes in words (Frost & Emery, 1996). "Awareness of phonemes is a prerequisite of the ability to segment letter strings into phoneme based units and to blend the resulting phonemes into words" (Wagner & Torgesen, 1987, p. 195). A beginning reading program should have phonemic awareness as part of the curriculum (Spiegel, 1995).

The ability to rhyme words is a key component in developing phonological awareness and early reading. Goswami and Bryant (as cited in Jenkins & Bowen, 1994) stated "onset and rime are psychologically real building blocks for reading in our syllabic

system" (p. 34). Onset is the initial phoneme or blend in a syllable. Rime is the vowel and closing phoneme or blend in the word. Using this principle of onset and rime a child can be introduced to the concept of one-to-one correspondence for sound-to-symbol match and to blending sounds (Jenkins & Bowen, 1991). According to Blachman (1991):

> Rhyming may have a particularly valuable place as an early indicator of phonological awareness and, as such, needs to be evaluated more thoroughly as an assessment tool with preschool children. Kindergarten children who are unable to identify words that rhyme or who cannot produce rhyme should be given more explicit instruction in this and other phonological awareness tasks. (p. 61)

"Providing educational environments conducive to literacy development in preliterate children can and should include phonological awareness activities" (Jenkins & Bowen, 1994, p. 28). As Blachman (1991) emphasized, an awareness of the phonological segments in words and a child's ability to manipulate these segments are skills crucial to reading acquisition. "If phonological skills are necessary for reading acquisition, it makes sense to teach children these essential skills at a developmentally appropriate level before they receive reading instruction" (O'Connor et al., 1993, p. 533). Phonological awareness can be taught and the benefits can be increased when connections between the phonological segments and letters are made quite explicit in the training. "Heightened

awareness of phonological structure of language gave children an edge that was evident in their superior scores in reading and spelling at the end of grade two" (Blachman, 1991, p. 59). There are significant reading gains when skills are taught directly and systematically. Bradley and Bryant (as cited in Torgesen & Baker, 1995), reported that phonological awareness training, either before or during the early stage of reading instruction, impacted significantly the rate at which children acquired alphabetic reading skills. Torgesen, Wagner and Rashotte (1994) stated:

> Interventions that produced the most powerful effects on subsequent growth in reading skills were those that combined training in phonological awareness with explicit training in application of these skills to reading, which always involved some instruction in grapheme-phoneme correspondences. (p. 277)

Support for the development of phonological processing abilities as having an important role in learning to read, is derived from observing young readers use the spelling strategy of hearing only three phonemes in a four letter word such as hide. A child who is aware of the sound sequences common to the spoken words cat, hat, and rat will be able to expand on this knowledge when learning the written forms (Wagner et al., 1993). Jenkins and Bowen (1994) stated that since spelling requires associations between printed letters and their speech sound counterparts, and since phonemic segments are difficult for at-risk children to

detect in speech, a visible representation of the sounds can help. A child's lack of awareness of sound segments or difficulty in the encoding of phonological information produces problems with letter-to-sound correspondence rules. A direct instructional program is most important during beginning reading to develop the child's ability to "decode printed word, segment it into sound, and blend sounds" (Hurford et al., 1994, p. 647). Torgesen, Morgan and Davis examined two types of oral language training programs designed to develop analytic (segmenting) and synthetic (blending) phonological tasks. In evaluating the results of their research study, they determined that "as long as phonological awareness is taught as a prereading oral language skill, it appears useful to include both types of tasks in the training exercises" (Torgesen et al., 1992, p. 369). Phonological processing training should be provided to students when they are "in the beginning of the first quarter of first grade, a time when most students are learning the relationships between letter names and sounds" (Hurford et al., 1994, p. 657). Kameenui (as cited in Beginning reading, 1996) stressed that phonological awareness activities should be frequent, fun, and plentiful.

After reviewing the literature and current programs, the authors of this research paper identified strategies to implement in a program of intervention. They designed an action plan to address the problems identified in the targeted at-risk first grade students. The plan focused on direct instruction in small

groups of students outside the classroom setting. Having these students understand that the purpose of skill instruction was to enhance their ability to develop meaning from print was one of the positive outcomes the authors hoped to achieve.

PROJECT OBJECTIVE

As a result of increased instructional emphasis on early literacy skills during the period of September 1996 to January 1997, the targeted first grade students will improve their reading and language arts skills as measured by observational surveys, formal and informal testing and student achievement.

PROCESS STATEMENTS

In order to accomplish the project objective, the following processes are necessary:

1. Implement activities for the direct instruction of print awareness skills.
2. Develop materials and activities for the direct instruction of phoneme awareness skills.
3. Create materials and activities for the direct instruction of phonological processing.

ACTION PLAN

This project was conducted with the targeted first grade students from one elementary building. The intervention was implemented by the three researchers in collaboration with the first grade classroom teachers. Direct instruction was in small group pull-out sessions scheduled for 30 minutes three times a week for a period of 18 weeks.

A lesson plan (Appendix D) was prepared by each researcher for the researcher's assigned day of instruction. Prior to each

week's intervention sessions, the researchers met to discuss progress, review goals and establish future objectives, as well as select strategies and activities for implementation of the objectives.

These three processes were implemented according to the following intervention plan:

1. Implementation of activities for the direct instruction of print awareness skills.

    a. Book orientation skills

        (1) Front, back

        (2) Top, bottom

        (3) Title

        (4) Print carries the message

        (5) Left-right direction

        (6) Beginning (first) and end (last)

    b. Visual orientation skills

        (1) Letter recognition

        (2) Word recognition

        (3) First and last letter of word

        (4) Capital letter recognition

        (5) Letter identification and production

    c. Directional orientation

        (1) Where to start

        (2) Which way to go

        (3) Return sweep to left

        (4) Word by word matching

d. Punctuation

(1) Period

(2) Comma

(3) Quotation marks

(4) Question mark

2. Development of materials and activities for the direct instruction of phoneme awareness skills:

a. Auditory recognition skills

(1) Repeats phoneme after teacher says phoneme

(2) Identifies number of phonemes

(3) Counts number of phonemes

(4) Sequences phonemes

(5) Hears phoneme, writes letter

b. Visual recognition skills

(1) Sees letter, says phoneme

(2) Sees word, says beginning phoneme

(3) Sees word, says ending phoneme

3. Creation of materials and activities for the direct instruction of phonological awareness:

a. Rhyming skills

(1) Identifies rhyming words

(2) Creates rhyming words

b. Manipulation of phoneme

(1) Substitutes phoneme

(2) Deletes phoneme

c. Phonological processing strategies

(1) Segments phonemes

(2) Blends phonemes

(3) Decodes/encodes phonemes

METHODS OF ASSESSMENT

In order to assess the effects of this intervention, several evaluation tools will be used periodically throughout the intervention. The initial whole class assessment, as described on page 12 of Chapter 2, will be used at the start of the school year to determine the extent of the first grade students' early literacy skills. In addition, the previous year's kindergarten teachers and the current first grade teachers will be given observational survey checklists to complete prior to the intervention.

Further assessment information will be obtained from the identified at-risk students who will be participating in the intervention program. During the first intervention session, the targeted students will be administered the researchers' rhyming and phoneme awareness test. As the intervention proceeds, student portfolios will be kept to document weekly progress, and researchers will keep daily anecdotal journals. Periodic researcher made tests covering the reading and language arts skills of print awareness, phoneme awareness, and phonological processing will be administered. During the intervention, additional information will be obtained from interviews with the first grade teachers and parents of the targeted students.

As a final assessment, selected researcher-made and published pretests will be readministered as posttests. This assessment will include: the researchers' rhyming and phoneme awareness test, the Test of Phonological Awareness, a letter identification test, a writing vocabulary test, a sentence dictation test, a concepts about print test, the Ohio Word Test, and a letter production from dictation test. Following the intervention, the first grade teachers will again complete the observational survey checklists.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The objective of this intervention was to improve the early literacy of nine at-risk first grade students identified in September 1996. The researchers determined the intervention group after analyzing data collected from assessments given to all students in the targeted first grade classrooms in August and September 1996. The assessments administered to all students were: the Test of Phonological Awareness, a writing vocabulary test, a sentence dictation test, a letter production from dictation test, the researchers' informal test, a letter identification test, a concepts about print test, and the Ohio Word Test. In addition, the researchers' rhyming and phoneme awareness test was administered during the first intervention session attended by the nine targeted students.

The identified children were placed in an intervention program that commenced in September 1996 and ended in January 1997. Direct instruction was delivered in small group sessions outside the classroom setting. The sessions were scheduled for 30 minutes three times a week for a period of 18 weeks. Each of the three researchers was assigned to instruct the intervention group on one of the three days. A lesson plan was prepared by

the researcher for the assigned day of instruction. The researchers participated in weekly team meetings. At these meetings student progress, goals, and future objectives were reviewed and established. The researchers planned the daily lessons based on specifically designed strategies and activities to implement the objectives. A sample modified lesson can be found in Appendix D.

Results from the preassessment data were analyzed. The researchers determined the early literacy skill level of the students. Areas designated for improvement were print awareness, phoneme awareness and phonological processing.

Most of the students were lacking in beginning print awareness skills as shown by the scores on the concepts about print test. Areas of weakness were: book orientation skills, visual orientation skills, directional orientation skills and punctuation knowledge. It was noted that the students could visually identify upper and lower case alphabet letters, but could not produce them in written form from dictation. Word recognition levels as assessed by the Ohio Word Test were extremely low. The inability to write words and sentences revealed a lack of sound to symbol association skills.

To remediate weak print awareness skills, direct instruction was given in book orientation skills. The researchers used published big books, teacher-made duplicated books, and trade books to teach students how to visually follow print. Pointing and auditory cues were used to help them track from top to bottom

and left to right of a page. Additionally, students learned how to distinguish between letters and words. Initially, students were taught to point to each word with their finger while listening to the researcher or another student read and while doing independent silent reading. Students were instructed to locate words in the text by listening to the beginning phoneme and the sequence of phonemes. Punctuation marks including the period, question mark, exclamation mark, comma, and quotation marks were taught as integral parts of the text.

Since the students could not write upper and lower case alphabet letters from dictation, systematic instruction was provided while emphasizing sound to symbol relationships. As each phoneme was presented, students were instructed in how to produce the corresponding written symbol. The visual symbol was shown as the phoneme was orally presented; the students were asked to match the letter symbol to the picture having a corresponding beginning letter or phoneme. Many of the students did recognize letter symbols and could write some upper case letters, but they were weak in writing lower case letters. Researchers' early instruction emphasized correct lower case as well as upper case written letter production. As the intervention progressed, students were expected to write upper and lower case letters on request by the researchers. Correct letter production was instructed through the use of phoneme awareness strategies. Research has shown that using the alphabet during phonemic awareness instruction not only makes phonemic

awareness skills easier to learn, but also has stronger effects on reading. Students were trained to listen for, watch for articulation of, as well as verbally produce each isolated phoneme before writing it. The students received instruction in sound to symbol correspondence simultaneously with the instruction in writing individual alphabet letters. As student skills for writing the individual letter symbols improved, students were given practice in writing words and eventually complete sentences.

Preassessment data also indicated lack of phoneme awareness skills and phonological processing abilities. The English alphbetic language requires explicit phoneme or speech sound awareness instruction. Phonemic awareness is not the same as phonics; it is the ability to think about sounds in spoken words. Conversely, phonics refers to the relationships between letters and sounds in written words. Review of current research literature indicates that important aspects of the emergent stages of literacy skills are the development of phonological awareness and an understanding of the relationship between speech and print. For children to learn to read and write, they need an awareness of the speech-print connection. As children develop phonological awareness, they become able to apply their growing knowledge of letter-sound relationships to invent spellings and to recognize words. Therefore, the researchers incorporated many activities and materials into lessons designed to help students

become aware of the speech sounds in words and how the alphabet represents these sounds.

As a way of bridging speech to print and establishing sound to symbol correspondence, the researchers used the same format to present each phoneme. Each student was provided a small hand mirror to be used in visual orientation training to establish recognition of the articulatory features of the targeted phoneme. While students orally produced the phoneme, they were instructed to note the movement of articulators (lips, teeth, tongue) as viewed in their personal size mirror. In addition, students were asked to identify the presence of air or voice in the phoneme production by placing one hand before the mouth to feel air or breath escape, and one hand on the laryngeal area to feel vocal fold vibration. Since the alphabet represents speech sounds, the beginning reader must become aware of these sounds in order to understand how the alphabet works. During phoneme awareness instruction, phonemes were presented in relationship to their articulatory features. Lip sounds p, b, m, for example, were introduced together with emphasis on their common feature of lip closure. In addition, the fact that the b has voiced quality, the p has the element of breath, and the m has a nasal emission of air, was brought to the students' attention. Another example of the procedure of phoneme introduction, was the presentation of the tongue tip sounds t and d, with attention focused on the fact that although both were produced with the same articulatory position, one was voiced and one was a breath sound.

Instruction emphasized strengthening each student's ability to identify the different phonemes that make up words and to associate these phonemes with written words. Students' attention was focused on recognizing beginning and ending sounds in words and the sequence of sounds. Both published material and teacher-made activities were provided to require the children to make judgements about the position of sounds in words. Examples were:

1. Disappearing letter activity: the researcher put letters on the chalkboard and the student called on had to give the letter name and its sound. The object was to see how quickly the board could be erased. All letters covered in previous lessons were put on the board. Accuracy and quick recall were stressed.

2. Sound box activity: students were shown a picture and were asked to say the word slowly. A card with a square (box) for each sound, i.e., the three square card for the word /m/a/p/, was given to each student. The students articulated each sound of the word as they pointed to each box.

3. Auditory to motor tasks: researchers articulated the isolated phoneme and students wrote the corresponding alphabet letter. Researchers articulated a word and the students wrote the corresponding alphabet letter for the beginning and ending sounds heard.

4. Auditory to verbal tasks: researchers said the word and asked the child to verbalize the beginning sound. Researchers said a word and the child verbalized any other word that started or ended with the same sound.

5. Word and sound retrieval activity: the researcher asked the children to say a word that began or ended with that week's targeted phoneme whenever they saw the researcher in the school setting. As instruction progressed to rhyming, students were asked to give a pair of rhyming words.

Researchers strongly emphasized student attention to learning not only phonemic awareness, but also phonological processing skills. Specific phonological awareness abilities such as rhyming, sound blending, sound sequencing, segmenting, deleting and substituting are directly related to reading achievement.

Research has shown that success in producing rhyming words is related to early reading success (Wagner and Torgeson, 1987, p. 195). Throughout the intervention numerous opportunities were provided to improve and expand student awareness of rhyme. Materials provided encouraged students to make judgements about rhymes and produce rhyming words. Rhyming games and activities helped children to become aware of rhyme in a fun way. Rhyme is a way of categorizing the words we hear; on the basis of their common sound patterns words can be group together. Since words in these categories often have similar spellings, children were provided activities that included the following: children were asked to judge whether or not words rhymed, children were asked to say words that rhymed with target words, and children were asked to produce rhyming words in written form as well as orally.

Trade books emphasizing rhyming words were read with the students.

Training was initiated in the specific phonological processing skills. In segmentation, the child articulated each separate sound segment heard in a word. Researchers instructed students to say map and count the sounds or segments heard. "How many sounds do you hear in the word map?" In partial segmentation, students were asked to separate the beginning sound from the rest of the word. "What is the first sound of map?" They were also asked to identify the ending sound. "What is the ending sound of map?"

In blending, the students were asked to put together words from their isolated sounds or phonemes. Researchers instructed students to respond to "What word can you make from /m/a/p/?"

In deletion and manipulation training tasks, the students were told to mentally remove a segment of a word to make a different word. Researchers instructed students to "Say meat; now say it again without the /m/." In more complex auditory analysis tasks, students were asked to remove a phonemic segment and put it somewhere else in a word to make a new word, i.e., "Say make; say it again but instead of /m/ say /t/."

Students were also instructed in sequence of sounds before proceeding to the writing of words. Students were instructed to examine individual sounds in a presented word: they were to hear, articulate, and write all the sounds heard. For example, the word hop was orally presented. The students were asked to listen

to the word and tell the number of phonemes heard. Then, the students were asked to orally repeat the phonemes in the correct sequential order. Next, the students were asked to write the corresponding alphabet letters in correct sequence.

Within the first week of the intervention, the researchers determined that the emphasis on improving students' auditory skills was critical to the success of the intervention. It was apparent that listening skills needed to be taught. Students were required to watch and listen carefully during instruction.

Inattentive, disruptive student behavior was identified early as a possible factor in the students' weak early literacy skills. As the result of three students' inappropriate behaviors, a structured behavior plan was established during the first week of the intervention.

Presentation and Analysis of Results

Following the intervention, the first grade teachers again completed the observational survey checklist. As described on page 12 of Chapter 2, the teachers were asked to rate each of the targeted students according to designated behaviors. A comparison of the pretest and posttest results of the observational survey are shown in Table 4.

Table 4

Categories and Ratings of Targeted Students As Reported by Classroom Teachers September 1996 and February 1997

Targeted Students	Attention to Teacher		Follows Directions		Time on Task		Print Awareness	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
A	1	2	1	2	1	1	2	3
B	2	2	2	2	2	3	2	2
C	2	2	1	3	2	2	2	3
D	1	1	1	1	2	2	1	1
E	2	3	2	3	2	3	2	3
F	2	3	3	2	3	2	3	3
G	1	1	1	1	2	2	1	2
H	1	3	1	3	2	3	1	2
I	1	3	1	3	2	3	1	2

1=not at all 2=sometimes 3=most of the time

Based on the ratings by the classroom teachers, three students improved in all categories surveyed, one student showed no improvement in any category, and one student showed a decreased rating in two of the four areas. Six of the students were given an improved rating on print awareness. A few of the first grade teachers' comments were: "lots of improvement," "gained confidence," "still wiggly," "may be ADHD," and "daydreams."

In analyzing the teachers' ratings and comments, the researchers drew several conclusions. Due to the subjective

nature of the survey, as well as the individual teacher's expectations, the results of the teacher survey did not conclusively demonstrate the same improvement documented in the researchers' anecdotal journals. The researchers' journals noted steady improvement in all the categories surveyed. Within the small group pull-out intervention setting, the researchers established and maintained a structured learning environment. The researchers' emphasis was on attention to the researcher during instruction, on following directions, and on maintaining effort and time on task during instructional sessions. The classroom teachers' lower ratings in some categories may have been due to the lack of transfer from the small group intervention setting to the whole classroom setting. The researchers were not certain if students were unable to transfer the skills independently, or if the classroom teachers' expectations and classroom management styles may have varied from the researchers.

Postintervention assessments were administered early in February 1997. To measure the students' growth in ability to produce a letter in written form, the researchers readministered the letter production from dictation test. The comparison of pretest and posttest results are shown in Figure 8.

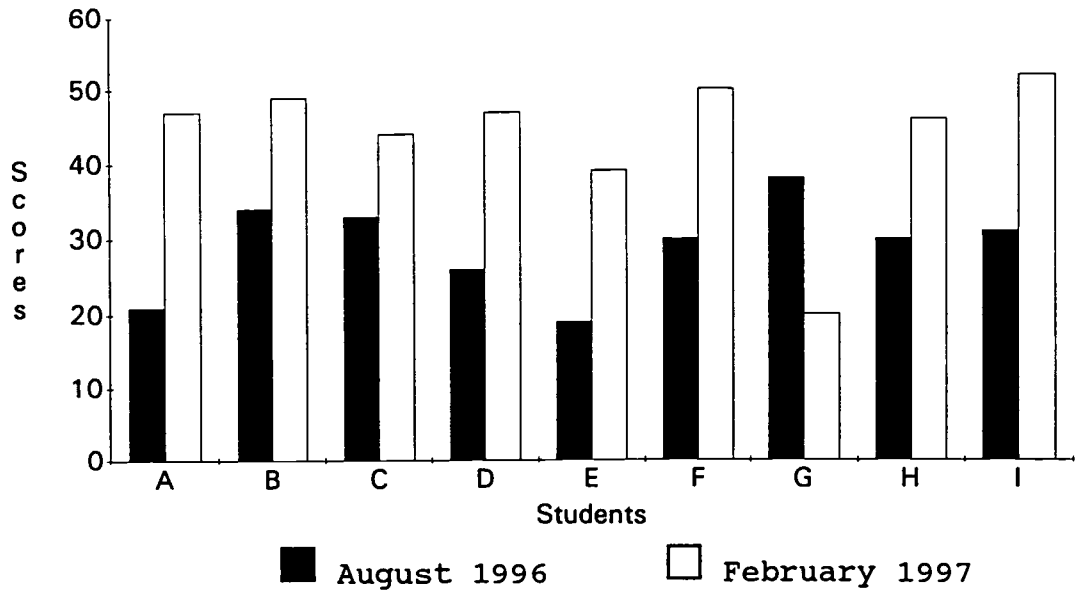

Figure 8. Comparison of scores obtained from the letter production from dictation test.

Prior to the intervention, none of the targeted students were able to write more than 65% of upper and lower case letters. Following the intervention, seven of the nine targeted students were able to write correctly 80% or more of the upper and lower case letters. One student's letter production score decreased due to confusion between upper and lower letters during the test. This student had exhibited some confusion during weekly intervention sessions.

To assess the current receptive phonological skills of the targeted students, the Test of Phonological Awareness was readministered. The raw scores obtained by the students ranged from 17 to the maximum obtainable score of 20. These raw scores placed the students in the fifth to seventh stanine. The

researchers compared the pretest and posttest stanine scores obtained by the students as shown in Figure 9.

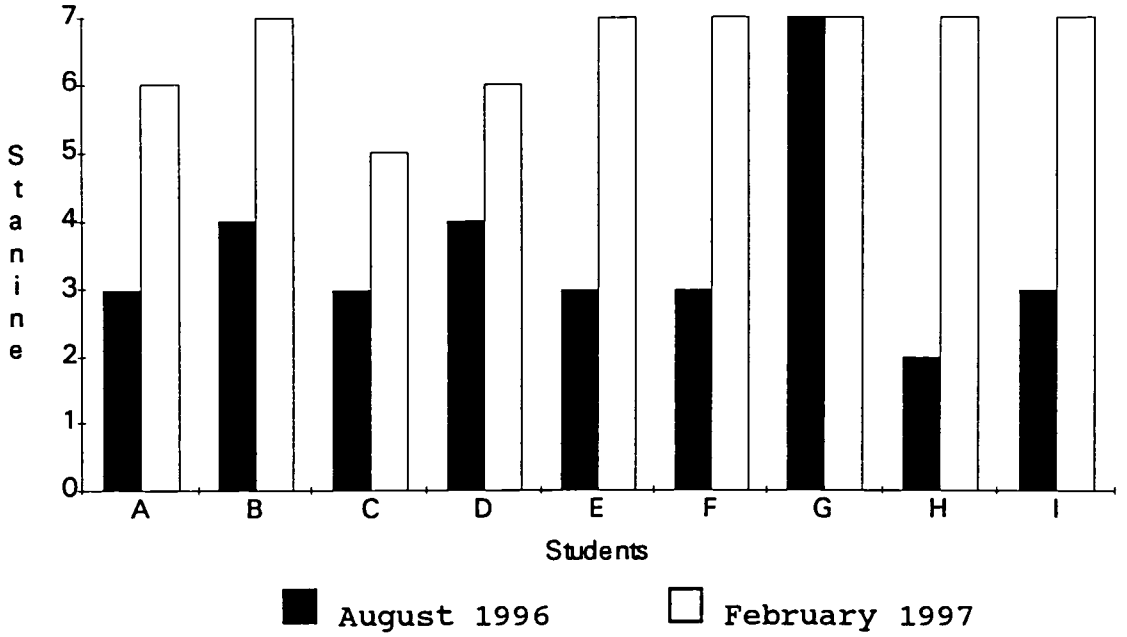

Figure 9. Comparison of stanine scores obtained from the Test of Phonological Awareness.

The students' scores showed an average increase of three stanines. Six out of the nine students obtained a maximum stanine score of seven. Half of the students achieved a 50% increase in their stanine score.

The writing vocabulary test was readministered to assess the increase in the students' abilities as a result of the intervention. A comparison of pretest and posttest scores are shown in Figure 10.

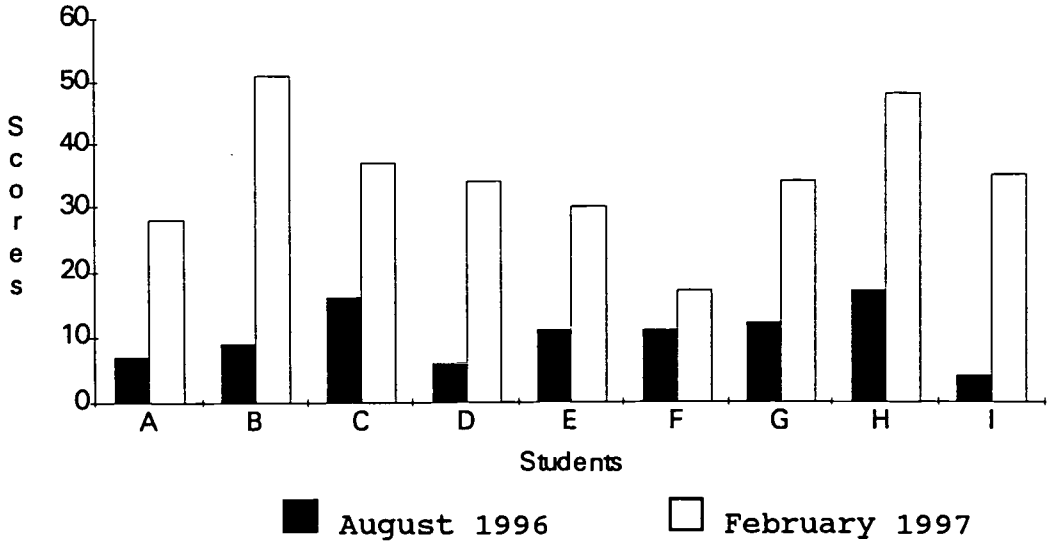

Figure 10. Comparison of scores obtained from the writing vocabulary test.

Two thirds of students increased their writing vocabulary between 21 to 31 words. The highest increase by a student was 42 words. The least improvement was six words.

The sentence dictation test was readministered to assess the ability of the students to analyze and record sounds (phonemes) in words. A comparison of scores is shown in Figure 11.

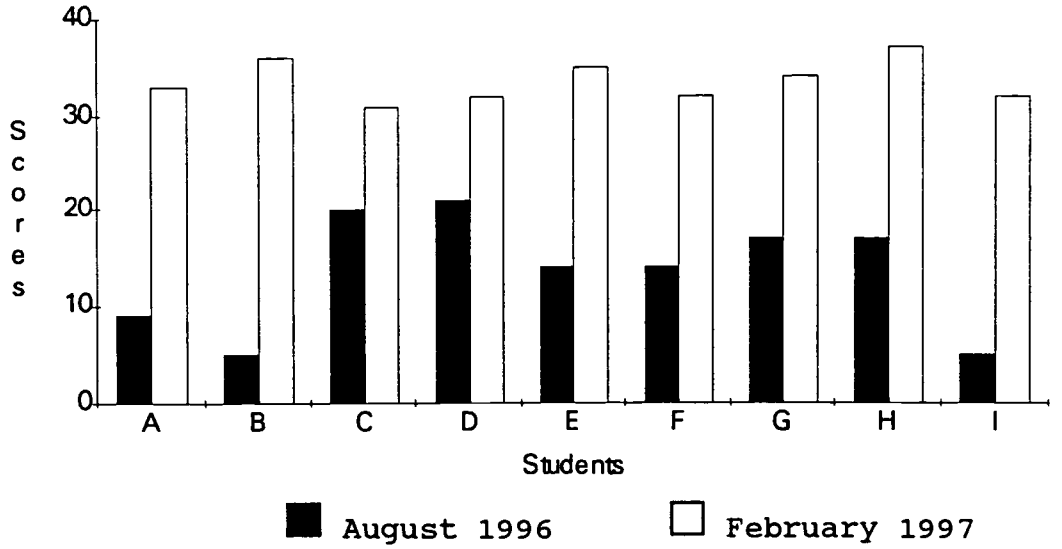

Figure 11. Comparison of scores obtained from the sentence dictation test.

In the posttest the mean score was 33.6 compared to a mean score of 18.5 in the pretest. One student obtained a perfect score of 37 points. All other students scored 31 or more total points. The greatest increase by any student was a 31 point increase from pretest to posttest. All students scored at least 86% of the maximum possible points.

To assess the growth in the students' sight word vocabulary, the Ohio Word Test was readministered. The test protocol calls for List A to be given as a pretest and List B to be given as a posttest. The comparison of pretest and posttest scores is shown in Figure 12.

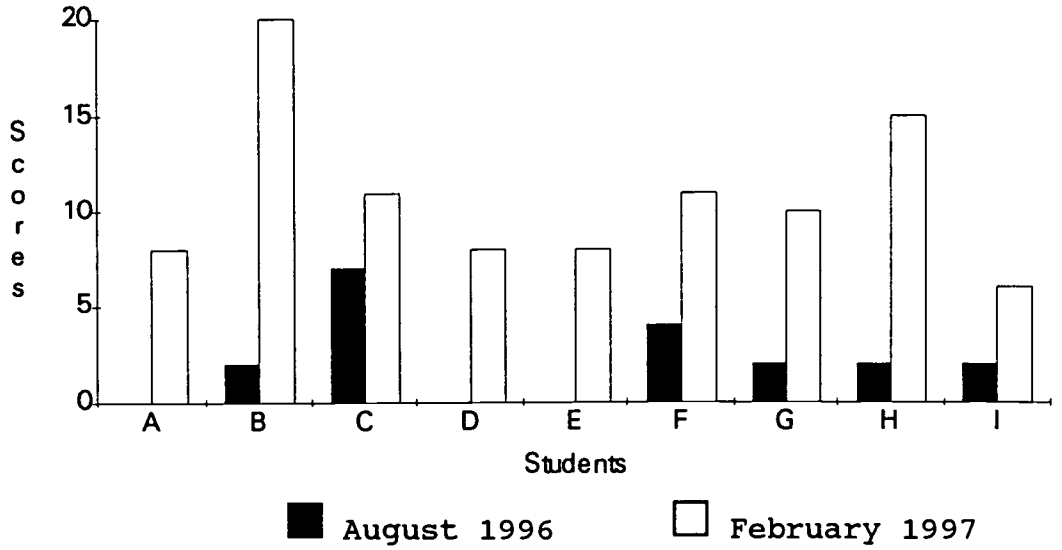

Figure 12. Comparison of scores obtained from the Ohio Word Test.

Students' word recognition scores on the posttest show dramatic increases from the pretest scores for 9 of the 11 students. Two of the students showed an increase of four words with one student showing an increase of 18 words.

To assess the students' growth in their knowledge about print, the researchers readministered the concepts about print test. The comparison of the pretest and posttest results is shown in Figure 13.

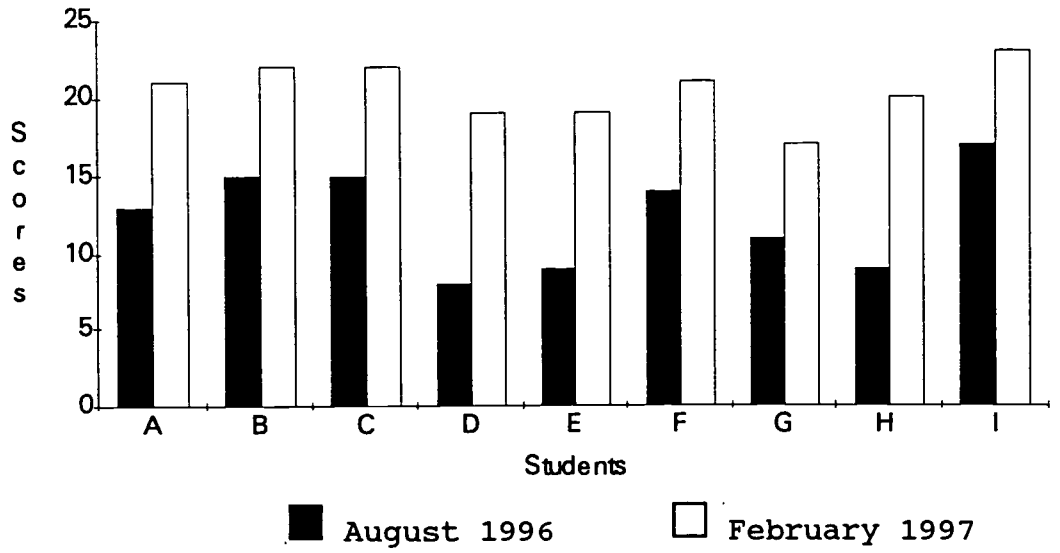

Figure 13. Comparison of scores obtained from the concepts about print test.

The range of scores on the pretest was 8 to 17 points compared to 17 to 23 points on the posttest. On the pretest the mean score was 12.3 compared to 20.4 on the posttest. Sixty-six percent of the students scored 20 points or higher out of a maximum of 24 points on the posttest.

To assess the students' ability to identify letters, the researchers readministered the letter identification test. This test contains all 52 alphabet lower and upper case letters plus print a and g. The comparison of pretest and posttest results is shown in Figure 14.

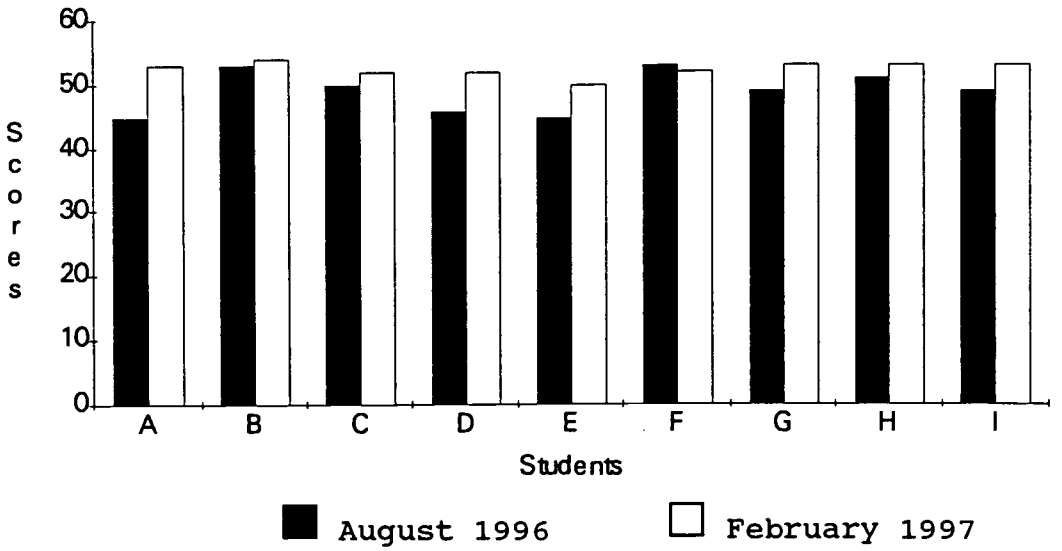

Figure 14. Comparison of scores obtained from the letter identification test.

The range of scores on the pretest was 45 to 53 correctly identified letters. On the posttest, the range of scores was 50 to 54 correctly identified letters. All students were able to identify 93% or more of the letters.

To assess the improvement in the individual student's ability in the areas of rhyming and phoneme awareness, the researchers' rhyming and phoneme awareness test was readministered as a posttest. The comparison of pretest and posttest scores is shown in Table 5.

Table 5

Categories and Percentages of Correct Responses by Targeted Students on the Researchers' Rhyming/Phoneme Awareness Test September 1996 and February 1997

TARGETED STUDENTS	RHYMING		PHONEME AWARENESS	
	Pre	Post	Pre	Post
Student A	60%	**80%**	29%	**79%**
Student B	80%	**100%**	36%	**93%**
Student C	90%	**90%**	14%	**71%**
Student D	40%	**80%**	22%	**71%**
Student E	50%	**90%**	0%	**79%**
Student F	30%	**80%**	0%	**57%**
Student G	100%	**100%**	86%	**86%**
Student H	50%	**90%**	0%	**57%**
Student I	70%	**100%**	0%	**50%**

On the rhyming pretest, the percentages of correct responses by targeted students ranged from 30% to 100%. On the posttest, all students scored from 80% to 100% of correct responses. On the phoneme awareness pretest, the percentages of correct responses was from 0% to 86% as compared to 50% to 93% on the posttest.

Conclusions and Recommendations

The goal of this early reading intervention was to improve skills of the targeted students in the areas of print awareness,

phoneme awareness, and phonological processing skills in order to promote reading success. The assessments not only enabled the researchers to identify at-risk students to target for intervention, but also provided information critical to determining the areas of instruction. Postintervention assessments strongly indicate student improvement. The researchers believe that intervention for at-risk students must begin as soon as possible to build preliteracy skills essential to success in reading. The data obtained by the researchers shows skill advancement for all the targeted students as the result of the 18 week intervention program which commenced in September 1996.

As a result of the emphasis on developing print awareness, students' motivation to want to read books increased. Students were confident that they could actually read print. Both classroom teachers and some parents observed a new enthusiasm for reading at school and at home. Students began to improve in their ability to read their grade level readers as well as patterned, predictable trade books. Students' positive attitudes towards reading resulted in classroom instruction in reading being given at a higher level.

The researchers felt that phonemic awareness was needed for accurate decoding. Therefore, parent and classroom teacher comments regarding the targeted students' increased willingness and confidence to decode words during oral reading supported the researchers' conclusion that direct instruction in phonemic

awareness increased student motivation to read. The researchers observed that as instruction in phonemic awareness proceeded, the individual student's ability to encode words improved resulting in a noticeable improvement in the ability to spell words. Confidence in writing and spelling words independently was observed in the students' classroom journals and in written work. Although spelling and written expression were not formally assessed by the researchers, student success in these literacy areas may have been an outgrowth of the direct instruction.

The researchers noted that targeted students' phonological processing skills improved as consonants and vowels were presented by distinctive oral motor features. As the direct instruction moved from isolated sounds to words, students increased their ability to produce oral and written sound symbol correspondences. They became able to apply this knowledge of letter-sound relationships to invent spellings and to recognize words.

Students on the waiting list to enter the Reading Recovery program, who were a part of the intervention group, benefited by acquiring print awareness, phonemic awareness and phonological processing skills in addition to building both writing and sight vocabularies. Four of the targeted intervention students entered the second round of the Reading Recovery program at the beginning of February 1997 at a higher text level than in the fall and were able to successfully discontinue the program with the number of lessons received being much lower than the average of 60 lessons.

The Reading Recovery teacher (one of the researchers) strongly agreed that the rate of accelerated progress may have been facilitated by the students' participation in the small group early literacy intervention.

Listening skills, time on task, and attentive behavior were stressed during the instruction sessions. As the intervention progressed, the researchers noted improvement in student listening and learning behavior as documented by the researchers in daily anecdotal records kept for each targeted student. As a result of the direct instruction in listening skills, students were able to watch and listen attentively during the intervention lessons presented by the researchers. The researchers feel it is critical that listening and attentive behavior not only be expected, but also be directly instructed. It is recommended that classroom teachers teach listening skills and emphasize student use of these listening strategies.

Following the implementation of the structured behavior plan during the intervention lessons, student behavior showed improvement. Although learning behavior improved for these students, the researchers felt that these behaviors needed to be further addressed. During teacher and parent conferences at the end of the intervention, the researchers found that classroom teachers had seen minimal transfer of attentive behaviors for these students. Two of the students were referred by the researchers and the classroom teachers for medical diagnosis of a possible attention disorder. As a result, one of the students

was placed on medication for an attention disorder. A third student, at the request of a parent, started on a behavior program to improve study habits in the classroom and to improve behavior in the home setting.

Parents' comments throughout the intervention were supportive. Parents noted that their children were reading on their own at home; they found as children read orally they seemed more confident to sound out words. Also, parents noticed the children were willing to do writing and spelling tasks at home. Classroom teachers were positive and supportive of the intervention and noted improvement in both reading and writing skills along with an increase in self-esteem and confidence in the classroom.

The researchers feel it is important to note that in the weeks and months following the intervention, many parents of the targeted students have commented on how positive the intervention has been. The parents feel the intervention has been an important part of their child's learning to read. The students have also made comments about how well they are doing in reading and how much they like to read.

In conclusion, the researchers feel that print awareness, phoneme awareness, and phonological processing skills are important components of the early acquisition of reading and writing skills. Providing learning opportunities for students who demonstrate limited knowledge of the speech-print connection is crucial at the beginning of first grade. The researchers

strongly advocate direct instruction, not only for at-risk students, but for the whole first grade classrooms. In addition, the researchers feel it is developmentally appropriate to directly instruct preliteracy skills at the kindergarten level. Although the researchers' intervention was with nine targeted students in pull-out instructional sessions, classroom teachers could be trained during inservice meetings to teach print awareness, phoneme awareness, and phonological processing skills. Teachers in the classroom setting also need to teach specific listening skills and emphasize student use of listening strategies throughout the school day.

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CLASSROOM TEACHER OBSERVATIONAL SURVEY

First Grade Teacher_____Date_____

Rating Scale: (1) not at all (2) sometimes (3) most of the time

Student Name	Attention to teacher	Follows directions	Time on task	Print Awareness	Teacher Comments

APPENDIX A
Teacher Observational Survey

APPENDIX B
Researchers' Informal Test

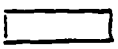
Student_____Teacher_____Date_____

Rating Scale: (+) passed (-) failed

AUDITORY SHORT TERM MEMORY
Directions: Child is to repeat in correct sequential order.

					RATING
1. Words: (a)	cat	house	boy	tree	_____
(b)	barn	dog	car	nose	_____
(c)	mouse	ball	girl	milk	_____
2. Sentences: (a)	The dog chased the big red ball.				_____
(b)	Mother and father went to the store.				_____
(c)	Mary found a large shell on the beach.				_____
3. Oral Directions:					
(a)	Stand up, turn around, clap				_____
(b)	Touch nose, clap, stand up				_____
(c)	Close eyes, stand up, touch ear				_____

VISUAL SHORT TERM MEMORY
Directions:
1. Child is shown four pictures for five seconds. Pictures are then given to child out of order; child is to put in correct sequence.

					RATING
(a)					_____
(b)	red	blue	green	yellow	_____
(c)	dog	fish	cat	pig	_____

2. Child is shown a word for five seconds. The word is then removed and the child is to correctly write the word.

		RATING
(a)	cat	_____
(b)	HALL	_____
(C)	MAN	_____

LETTER PRODUCTION FROM DICTATION
Directions: Child is to write letters as they are orally presented. Errors are to be circled.

Upper Case (Capital letters):

A F K P W Z B H O J U C Y

L Q M D N S X I E G R V T Errors

Lower Case (Small letters):

a f k p w z b h o j u c y

l q m d n s x i e g r v t Errors

APPENDIX C
Researchers' Rhyming/Phoneme Awareness Test

Student:_____ Teacher:_____ Date:_____

RHYMING
Directions: "I'm going to say two words and ask you if they rhyme."

Demonstration: "Listen carefully. Big rhymes with dig. Does hat rhyme with fat? Does red rhyme with road?"

STIMULUS	**+/-**
1. book/look	___
2. hand/and	___
3. ring/rat	___
4. yes/house	___
5. fish/dish	___

Directions: "I'm going to say a word and I want you to tell me a word that rhymes with it."

Demonstration: "Listen carefully. Tell me a word that rhymes with hat. Tell me a word that rhymes with bee."

(Rhyming nonsense words are to be accepted.)

STIMULUS	**+/-**	**RESPONSE**
1. cat	___	_____
2. poor	___	_____
3. tame	___	_____
4. hitting	___	_____
5. brother	___	_____

APPENDIX C (con't)

PHONEME AWARENESS

Directions: Say the sound, not the letter name, when asking a child to say it again.

STIMULUS	+/-	RESPONSE
1. Say "man." Say it again but don't say /m/.	___	_____
2. Say "seat." Say it again but don't say /s/.	___	_____
3. Say "wise." Say it again but don't say /z/.	___	_____
4. Say "sled." Say it again but don't say /s/.	___	_____
5. Say "plane." Say it again but don't say /p/.	___	_____
6. Say "stale." Say it again but don't say /t/.	___	_____
7. Say "plant." Say it again but don't say /n/.	___	_____

Directions: "I'm going to say a word and I want you to say each sound in the word."

Demonstration: Say "cat." Then, say the individual sounds, pausing slightly between each one. "/k/../a/../t/" Say "big". Now say the individual sounds.

STIMULUS	+/-	RESPONSE
1. out	___	_____
2. me	___	_____
3. mat	___	_____
4. rock	___	_____
5. plane	___	_____
6. river	___	_____
7. plant	___	_____

Appendix D
Sample Lesson Plan

LESSON PLAN TEACHER:_____ DATE:_____			
	PURPOSE	ACTIVITY	MATERIALS
OPENING	To develop listening skills	Discuss rules of good listening	Rules for Good Listening poster
	To improve following directions	Teacher reads riddle; student follows orally given direction by marking worksheet	Get Ready for the Code Book A Crayons and pencils
	To improve short-term memory (auditory/ visual)	Review previous lesson's letter/sound Play Disappearing Letter Game	Chalkboard Alphabet cards
LESSON	To improve phoneme awareness	Use mirror; watch and listen for how sound is articulated Teacher says phoneme (Bb); student writes corresponding letter in correct form	Individual hand mirrors Pencils Lined paper
	To improve print awareness	Teacher reads book; points out conventions of print (words, directionality, etc.)	Big book, Brown Bear, Brown Bear
	To improve phonological processing	Teacher presents word; student names number of phonemes heard Rhyming choral chant	Sounds Abound blending cards Brown Bear, Brown Bear
CLOSURE	Review of current and previous phonemes taught	Stand Up-Sit Down Game: Student asked to name word starting or ending with designated phoneme (current Bb and previous phonemes)	
COMMENTS			

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